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ABSTRACT

Individuals with significant disabilities who have been trained to enter independent employment often depend too much on their job coaches. This guide describes strategies to enhance the problem-solving skills of learners with mental retardation by teaching them to use self-instruction or self-directed verbal commands. It details procedures for teaching self-instruction and provides sample scripts for common tasks. An introductory chapter discusses the value of self-instruction and identifies principles on which the recommended strategies are based. Chapter 2 describes the basic self-instructional training package, which includes: (1) a task analysis of the skill to be taught; (2) training sequences of self-instruction, verbal instructions, modeling, behavioral rehearsal, corrective feedback, and praise; and (3) procedures to monitor performance. Chapter 3 describes modifications of the basic package to include booster training, verbal labeling, and/or a combination of self-instructional training and one or more self-management strategies. Chapter 4 addresses principles of teaching self-instructional techniques in groups, and chapter 5 considers peer-delivered self-instructional training. The final chapter stresses the use of self-instruction to help students with mental retardation acquire, maintain, and generalize work behaviors. Sample training scripts are appended. (Contains 19 references.) (DB)

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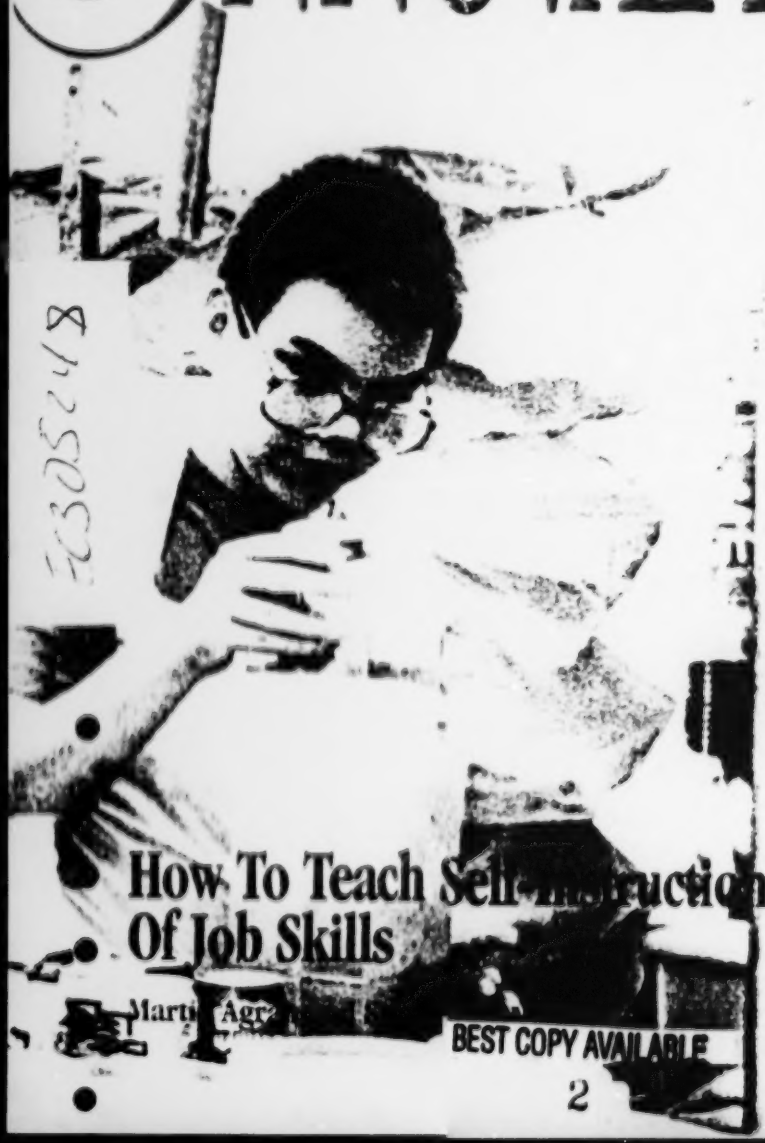

How To Teach Self-Instruction Of Job Skills

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Research Foundations

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"Teaching Self-Instructional Skills to Persons With Mental Retardation: A Descriptive and Experimental Analysis"
by M. Agran & R. Martella

"Applying a Technology of Self-Control in Community Environments for Mentally Retarded Individuals"
by M. Agran & J. E. Martin

"The Application of a Self-Management Program on Instruction-Following Skills"
by M. Agran, S. Moore, J. Taylor Davis, & M. Deer

"An Analysis of the Effects of a Social Skills Training Program Using Self-Instructions on the Acquisition and Generalization of Social Behaviors in a Work Setting"
by M. Agran, C. L. Salzberg, & P. Stowitschek

"Independent Performance Among Individuals With Mental Retardation: Promoting Generalization Through Self-Instruction"
by C. Hughes

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How to Teach Self-Instruction of Job Skills

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About *Innovations*

The *Innovations* series was created to help bridge the gap between research and practice. As a person who is involved in both realms, I have seen how long that bridge must be! However, the knowledge gleaned from research gains its significance in its application to improve the lives of people with disabilities. This series is designed for practitioners. Each issue will present planning ideas around a single theme. It also will make a contribution to the world of scholarship by creating a unique outlet for dissemination of research. Our challenge is to translate a line of research into usable, innovative ideas. How well did we succeed? I welcome your feedback on this new series. What was most useful or least useful in this issue? We need your help to plan future issues. What research ideas would you like to see translated into implementation? What problems do you encounter? Maybe we can find some answers in the research literature. I look forward to hearing from you.

Diane Browder, Editor *Innovations*
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CHAPTER ONE

Introduction and Overview

If learning is to be enhanced, students must learn ways to control their own environments and make choices for themselves.

Many employees with mental retardation experience job difficulties because they fail to respond appropriately and independently to changing circumstances in their work environments. They often depend too much on their trainers to manage their behaviors. Employees experience these problems because of their low independence levels and their need for continuous supervision. Many fail to maintain acceptable work performance and are unable to change work tasks as needed.

In supported employment models, trainers present behaviors or situations before and after a desired target behavior is exhibited (antecedent and consequent events) in order to shape approximations of desired behavior. Trainers control the work environment in this way (e.g., extrinsic reinforcement, instructional cues) until the desired "target" behavior is naturally reinforced in the daily work environment. Sometimes trainers may inappropriately acquire discriminative control, leading the employee to exhibit critical work behaviors *only* when the trainer is present. This can make it harder for the worker to maintain the target behavior and to generalize the behavior to other, new situations. This reliance on the trainer impedes development of independence. For people with mental retardation, this may result in job failure.

Limited practice in making decisions may cause (1) poor employee work attitudes, and (2) failure to maintain work performance. If learning is to be enhanced, students must learn ways to control their own environments and make choices for themselves.

Teachers in employment preparation programs often ignore opportunities to teach students to adapt to changing circumstances in their community placements. Many programs assume that dependence upon a job coach is acceptable; however, the employment outcome data suggest otherwise. Vocational and supported employment programs need to provide students with learning goals and strategies they can use to be as independent as possible. This independence will promote their employability over the long term. If enhancing the independence of students with mental retardation is indeed a major goal of transition and employment-preparation programs, we must work to see that transition programs are more student-centered.

The Value of Self-Instruction

The work performance of students with mental retardation improves greatly when they are trained to make task-specific statements out loud to themselves prior to performing a task. They learn to "talk to themselves," which serves to direct their behavior as if they were being directed by a teacher or job coach. Such verbal behavior can regulate or direct subsequent behavior. That is, it increases the likelihood that subsequent responses will be performed. People trained to use self-instructions can become their own change agents.

Because many students with mental retardation have difficulty solving problems or remembering what to do next, they benefit from self-generated verbal prompts that repeatedly cue desired behaviors. Consistent self-instruction

> **The human environment is in many ways a language environment, and our behavior is controlled largely by language self-instructions.**
>
> **– Agran & Martella (1991)**

increases the number of times students hear and attend to an important cue. With increased opportunities to repeat (and hear) their own instructions, students better recall task instructions. Self-instructions may serve as *preinstruction*, in which the person verbally rehearses what he or she needs to do.

Such training in self-instruction introduces a promising, cost-effective procedure to enhance the independent work performance and problem-solving skills of students with mental retardation.

> **The exclusive use of teacher-delivered instructional strategies in transition programs — with teachers solving adjustment problems for students rather than giving them opportunities to learn for themselves which decisions or responses are best — has only exacerbated the transition dilemma for many students.**
>
> **– Mithaug, Martin, & Agran (1987)**

Purpose of This Book

This book describes strategies to enhance the independent work and problem-solving skills of students with mental retardation by teaching them to use self-instructions or self-directed verbal commands prior to responding. Self-instructional training is a promising instructional strategy in which students learn to regulate their work

behavior verbally; that is, they provide their own verbal cues that "tell" them what to do.

Critical to the future employability of students with mental retardation is their ability to work appropriately with minimal supervision — to manage and direct their own behavior.

Many students with mental retardation benefit from self-generated verbal prompts that repeatedly cue desired behaviors.

This book will help teachers, job coaches, and transition specialists develop and teach self-instructional strategies to students with mental retardation. This instructional manual provides teachers, aides, and job coaches with a field-tested instructional program that will transfer student responding from teacher to self-directed cues. The manual describes teaching strategies that allow students to learn new tasks or perform previously mastered tasks at criterion levels in the absence of teacher-delivered cues and consequences.

The manual describes a self-instructional training package that can be used to teach students with mental retardation to learn a diverse repertoire of work behaviors. Additionally, the manual includes modifications for use by students with more severe learning needs. Also, the manual discusses the advantages of group and peer-delivered self-instructional training, as well as general recommendations on self-instructional training for teachers, transition specialists, and job coaches.

The strategies presented have been researched and validated for use by students with mild to severe mental retardation. They are based on the following five assumptions:

1. **The student, not the teacher or job coach, needs to solve work-related problems.** The ability to solve work-related problems independently is critical for the postschool employment success of students with mental retardation. In environments where cues, prompts, or consequences are inconsistent (e.g., competitive employment), students must learn how to provide their own.

> Self-instruction may serve as a problem-solving strategy because people use verbal behavior to actively process information. Verbal behavior may help a learner examine a problem situation, formulate a plan of action, follow that plan, evaluate the plan, and revise the plan as needed.
>
> **– Hughes (1991)**

2. **A shift from teacher-directed to student-directed cues is necessary to improve independent work performance.** The absence of a teacher or job coach may impair a student's independent work performance, especially when the student is used to a trainer presenting cues. Students can learn to generate their own cues for correct work.
3. **After students learn to self-instruct, they must repeat the pattern regularly; this will require frequent assessments.** Ongoing assessments of the students' use of self-instruction are necessary. Such monitoring gives teachers insights on the relationship between the self-instruction and changes in job performance.

4. **Students should be encouraged to continue the self-instructional strategy for the long term.** Self-instructions are cues that employees can continue to use to enhance long-term performance. Their total removal may result in decreases in performance.

5. **No matter how severe the students' disabilities, teachers must view these students as "self-directing" people.** Students must not be perceived as passive agents of teacher actions but as contributing members to the educational process. They must have many opportunities to solve problems and make decisions on their own.

Based on these assumptions, this book provides teachers and other professionals involved in transition programs with detailed information on:

1. how to use a self-instructional training package to help students acquire a wide range of work behaviors;
2. how to modify the basic teaching package for use with students with severe learning needs;
3. how to facilitate the teaching of self-instruction by peer tutors;
4. how to combine self-instructional training with other self-management training procedures; and
5. the benefits of teaching self-instruction in a group setting.

We also give several recommendations for using self-instruction to acquire work skills and to generalize those skills to other situations.

CHAPTER TWO

The Basic Self-Instructional Training Package

A precise task analysis is extremely important to identify the steps and sequence that will guide student learning.

The following section describes the basic self-instructional package you can use to teach a variety of work skills. The basic self-instructional package includes (1) a task analysis of the skill to be taught; (2) training sequences of self-instructions, verbal instructions, modeling, behavioral rehearsal, corrective feedback, and praise; and (3) procedures to monitor performance. The task analysis identifies the statements the student will verbalize; the training sequences describe how to teach the student self-instructions; and the monitoring procedures allow you to evaluate the effectiveness of the training. Each component is described below.

Prerequisite Skills for Self-Instructional Training

Because self-instructional training involves verbal expression, students should demonstrate some language skills to benefit from such training. However, it isn't clear what skill level in language is needed. No doubt, the student should be able to attend to visual and auditory stimuli (e.g., attend to a picture and sound for a specified period of time), imitate vocalizations (i.e., phonemes, words), initiate communication (e.g., gesture, nod head yes or no, use fingers), and move

other body parts (e.g., head, arm, shoulder).

A recommended way to determine if self-instructional training is appropriate for a student is to observe the student's communication responses. Does the student talk aloud? How many and what types of words are said? Does the student repeat instructions heard? What words does the student use consistently?

Because it remains uncertain what language skills are needed, limited expressive language should be a consideration as you design a strategy for instruction, but it should not be the criterion to determine whether the student should (or should not) be trained. (See chapter 3 for specifics on modifying a training package for people with limited language skills.)

Task Analysis

A precise task analysis is extremely important to identify the steps and sequence that will guide student learning. Many tasks must be completed in a specific order to successfully complete one job. For example, assembly jobs with several discrete steps require that each part be set in place in a specific order, without deviation. However, the obvious two- or three-step job sequence is usually not detailed enough to be an effective task analysis. Another example might be a janitorial job such as vacuuming the floor. The job might be sequenced simply in terms of where the vacuuming must occur (e.g., first the foyer, then the dining room), but this two-step sequence does not adequately identify the actual steps one must take to complete the job. An analysis of vacuuming the dining room might be more like that demonstrated in Table 1.

This detailed task analysis is important when teaching self-instructional strategies; you can use the analysis to identify the statements the students will verbalize as they walk through the job.

Table 1

Vacuuming Dining Room (Sample Task Analysis)

1. Get vacuum cleaner (closet next to sandwich bar).
2. Bring vacuum to dining room entrance.
3. Unwind cord.
4. Plug into outlet (in brick wall).
5. Turn on vacuum.
6. Spot vacuum as needed (crumbs on floor, paper, etc.).
7. Vacuum areas unoccupied by diners.
8. Unplug vacuum when cord no longer reaches.
9. Replug into new outlet.
10. Continue spot vacuuming until dining area has been cleaned.
11. Turn off vacuum.
12. Rewind cord.
13. Replace vacuum in closet, or take into office area.

Problems that develop during training can usually be taken care of by further refining the analysis. For example, "Get the vacuum cleaner" may be broken down into smaller steps: "Go to the closet next to the sandwich bar." Then, "Take vacuum cleaner by the handles." Then, "Wheel vacuum cleaner out of the closet." These refinements help make the job skills and their corresponding self-instructions easier to learn.

Training Sequences

Students can improve their own performance as they learn to instruct themselves. Self-instruction has been effective in teaching students to clean hospital rooms in a specified order, increase their production rates, make sandwiches in a food service facility, bus cafeteria tables, follow instructions, and perform other tasks.

Additionally, self-instructional teaching can serve a problem-solving function. The first verbalization can help define a problem. *(What do I need to do?)* The second can identify a solution to the problem *(I need to . . .)*. The third can provide additional information about the problem or self-directed feedback. *(Good going!)* This strategy is effective with work skills and social behaviors.

Good self-instructional training packages typically include sound instructional procedures such as initial teacher direction and modeling, feedback, reinforcement, and maintenance and generalization of learned skills to new situations. Teacher direction and modeling is important: As the trainer models each step of the sequenced task, the trainer should make the corresponding verbal statements.

Needless to say, the content of the verbalized self-instruction depends on the task being performed. The most effective self-instructions fall into four categories: (1) problem-solving, (2) did-next-now, (3) what-where, and (4) interactive (did-next-ask). A description of each follows.

Problem Solving

This self-instruction can be used to improve a variety of work skills. It is suitable for teaching students to identify and resolve problems that occur in a work environment (e.g., running out of work materials, misplacing a tool, needing to ask supervisor something). It helps students (1) state they have a problem; (2) come up with a solution for the problem (i.e., plan an appropriate response); and (3) direct themselves to perform the planned response. For example, when teaching students what to do when they run out of work materials, the trainer can teach the following instructions:

Problem-Solving Self-Instruction Example

Training Sequence	Verbalization
Problem: Runs out of work materials	"I ran out of _____."
Solution	"I need to get up and get more _____." (Or "I need to ask _____ for more _____.")
Planned Response	"I'll get up and ask for more _____."

Agran, Salzberg, & Stowitschek (1987) taught 5 employees with severe disabilities to make appropriate initiations with their supervisor when they needed work materials or assistance. Employees were instructed to verbalize a problem-solving strategy that allowed them to identify a problem, then determine an action to resolve the problem. The acquired skills maintained over time and generalized across settings.

Did-Next-Now Self-Instruction Example

Training Sequence	Verbalization
Did	"I have the key for the machine."
Next	"I need to open the outside door."
Now	"I'm going to open the outside door." (The student would open the door.)
Did	"I opened the outside door."
Next	"I need to open the inside door."
Now	"I'm going to open the inside door." (The student would open the inside door.)
Did	"I opened the inside door."
Next	"Next, I need to fill the 7-Up cans."
Now	"Now I'm going to fill the 7-Up cans." (The student fills the 7-Up cans.)
Did	"I've filled the 7-Up cans."
Next	"I need to fill the Pepsi cans."
Now	"Now I'm going to fill the Pepsi cans." (The student fills the Pepsi cans.)

Did-Next-Now

The did-next-now self-instruction is particularly suitable for responses performed in a sequence. The three verbalizations of this self-instruction help students (1) identify what response was just completed; (2) identify what response needs to be done next; and (3) direct themselves to perform the response. The first instruction is a statement of completion of a task step. The second statement cues and directs the student toward the next step in the job. The third statement instructs the student to do the next task step. For example, when students learn to restock vending machines, they use the self-instructions on the left.

The did-next-now self-instruction is particularly suitable for responses performed in a sequence. (See appendix A for a did-next-now training script.)

You can modify this three-statement did-next-now instruction sequence for students who have difficulty with the verbalizations; you might use only two self-statements — one relating to the response the student has just performed and another relating to the response the student needs to perform next (did-next). (A sample training script is provided in appendix B.)

What-Where

The what-where self-instruction is suitable for jobs the student can already perform, but are not under stimulus control. For example, you are training a student to perform different janitorial tasks (e.g., mopping, wet dusting). She can successfully perform each of the work skills in the training setting, but her performance is inconsistent in the natural setting. She can improve her performance by learning to tell herself *what* she is supposed to perform and *where* she is supposed to perform the task. For example, if she is learning to mop floors in a restaurant kitchen, the student learns two response sets: (1) what to do — mop the floor and (2) where to do it — "mop the floor in the kitchen." She reminds herself *what* needs to be done and *where* the response is to be performed.

What-Where Self-Instruction Example

Training Sequence	Verbalization
What	"I need to wipe food..."
Where	"off front of stove."

Interactive (Did-Next-Ask)

Unlike the other three self-instruction sequences, this type is interactive in function. These instructions are appropriate for tasks involving social interactions (e.g., serving a customer). Repeating the self-instructions out loud reminds the student what to do while performing the task *and* interacting with the customer, without producing any negative perceptions by the customer (i.e., hearing student talk to him- or herself).

The first verbalization ("did") reminds the student of the task step completed. The second ("next") directs the student toward the next step. The third ("ask") is a question addressed to the person with whom the student is interacting. The following is an example of this type of self-instruction. The customer is ordering a sandwich, which the student will make.

In each of the four types described, self-instruction provided the student with information about the characteristics of the job.

Did-Next-Ask Self-Instruction Example

Training Sequence	Verbalization
Did	"I'd like to order a sandwich."
Next	"Bread next."
Ask	"What kind of bread would you like?"
Customer:	"I'd like rye bread, please."
Did	"I have the rye bread."
Next	"Spreads are next."
Ask	"What type of spreads would you like?"

In this example, the students learn to be interactive in the work setting. By thinking through the did-next-ask statements, they can respond appropriately to changing orders. Each of the three statements served a purpose. The "did" statement identified what had just been done. The "next" instruction identified what the student needed to ask the customer. The "ask" statement requested information from the customer about the next step in the sequence.

Clearly, customers or co-workers may look askance during interactions with people who self-instruct, since people generally don't say out loud what they intend to do. Considering this, social situations requiring immediate verbal responses are probably not amenable to self-instruction procedures. But if the social interaction is in a

question format, self-instructions can serve a double function. (See appendix C for a sample script showing how this strategy works.)

The function of self-instructions is to provide the individual with sufficient information so that he or she knows when the task is to be performed and which responses will need to be performed. In each of the four types described, self-instruction provided the student with information about the characteristics of the job.

Selecting a Training Sequence

The different training sequences provide strategies to teach a variety of work skills. The problem-solving sequence is used for a task involving a problematic situation. The did-next-now strategy is suitable for any task that involves a sequence of responses. The what-where strategy is useful for work behaviors that need to be performed in a specific place within a larger setting. The interactive strategy is appropriate for a number of tasks involving social interactions.

After selecting a teaching sequence, you will need to write the teaching script. In the following pages, we present four script formats. Once filled out, the script provides you with an overview of the information you need to run the program.

A problem-solving script should include information about the desired response and the statements to be taught. Also indicate what reinforcer and correction procedure will be used. (See Figure 1.)

The did-next-now script should include information about the desired response. In line with the nature of the strategy, list the preceding and target responses, as well as the associated verbalizations. Also note the reinforcer and correction procedure. (See Figure 2.)

Figure 1

Problem-Solving Strategy Script

Student:_____ **Setting:** _____

Instructional Target:_____ **Task:** _____

Target Response (What student should do)	**Verbalization** (What student says)	**Reinforcer**	**Correction Procedure**
	Description of problem: Solution: Planned response:		
	Description of problem: Solution: Planned response:		
	Description of problem: Solution: Planned response:		

Figure 2

Did-Next-Now Strategy Script

Student: _____ **Setting:** _____

Instructional Target: _____ **Task:** _____

Preceding Response	Verbalization (What student says)	Target Response (What student should do)	Reinforcer	Correction Procedure
	Did: Next: Now:			
	Did: Next: Now:			
	Did: Next: Now:			

The what-where strategy script should state the desired response and the verbalizations to be taught. Identify any antecedent or competing stimuli (e.g., loud noise, nearby work activity) that may delay or disrupt responding. Also note the reinforcer and correction procedure. (See Figure 3.)

The interactive strategy script should include the target response and associated verbalizations. Also note the reinforcer and correction procedure. (See Figure 4.)

Training

During training, students learn to self-instruct before performing the target response. This usually requires that you teach them a two-step process — how to complete the task and how to use verbal self-instructions.

Our study revealed that daily training sessions, approximately 30 minutes long, across 4 to 5 days were sufficient to teach self-instructions. We recommend the following instructional sequence.

1. Give the students a rationale for training: If they tell themselves what they need to perform, they will remember what they need to do and become better workers.
2. Demonstrate the self-instructional strategy and perform the desired response. Follow the script.
3. Ask the student to do the same.
4. Provide corrective feedback as appropriate.
5. Reinforce the student for correct verbal and task responses.
6. If only one response is correct, provide corrective feedback.

Figure 3

What-Where Strategy Script

Student: _____ **Setting:** _____

Instructional Target: _____ **Task:** _____

Target Response (What student should do)	**Antecedent Stimuli**	**Verbalization** (What student says)	**Reinforcer**	**Correction Procedure**
		What: Where:		
		What: Where:		
		What: Where:		

Figure 4

Interactive Strategy Script

Student: _____ **Setting:** _____

Instructional Target: _____ **Task:** _____

Preceding Response	**Verbalization** (What student says)	**Target Response** (What student should do)	**Reinforcer**	**Correction Procedure**
	Did: Next: Ask:			
	Did: Next: Ask:			
	Did: Next: Ask:			

Initially, corrective feedback should consist of reminding the student what the appropriate self-instruction or task response is. When this is insufficient, the teacher should model the correct performance and ask the student to imitate the modeled response. Continue modeling until the student responds correctly.

For example, a student starts a 10-step window-cleaning task and forgets to self-instruct before washing the window. The teacher stops him and says, "No. You need to tell yourself: 'I took the bucket to the window. I need to sponge the window. Now I'm going to sponge the window.' Now you try it." If this correction procedure is successful, the trainer gives verbal praise (or another reinforcer). If the student fails to respond correctly, the teacher says, "Watch and listen to what I say and do: 'I took the bucket to the window. I need to sponge the window. I'm going to sponge the window now.' " Then the teacher models the response and sponges the window. Next, the teacher says, "Now say and do what I did." For more examples, see the training scripts in the appendices.

Monitoring Performance

You should collect data to evaluate the effectiveness of the training. This requires information on how frequently the student self-instructs, then performs the task. If you don't know if the student makes the appropriate verbal statements, you will be unable to conclude that the student is using the strategy.

The sample form in Figure 5 (this particular example for table busing) allows you to record the student's self-instructions and task responses. Record observations by placing "+" or "-" in spaces indicated for instructions and task responses. The student used the did-next-now strategy, for each task step, repeating three verbalizations. In this example, the student made 11 out of 21 self-instructions and completed 4 of the 7 steps in the job. As indicated in the "self-instructions" row, the student had difficulty with self-instructions in three steps of the sequence: cleaning table, dusting seats, and emptying trash. As indicated in the "task performance" row, the student did not perform these responses.

Figure 5

Data Form for Monitoring Performance

(Example: Table Busing)

		Get Bucket	Pour Water	Wet Cloth	Clean Table	Dust Seats	Empty Trash	Replace Supplies	Total
Self-Instructions	Did	+	+	+	+	−	−	−	11
	Next	+	+	+	−	−	−	−	
	Now	+	+	+	−	−	−	+	
Task Performance		+	+	+	−	−	−	+	4

Figure 6

Data Form for Monitoring Sequence of Performance

(Example: Table Busing)

		Get Bucket	Pour Water	Wet Cloth	Clean Table	Dust Seats	Empty Trash	Replace Supplies
Self-Instructions	Did	1	5	9	13			
	Next	2	6	10				
	Now	3	7	11			15	16
Task Performance		4	8	12			14	17

From this graphed information, we can see that the student did not consistently use the did-next-now strategy. And when he did not self-instruct, he did not perform the corresponding tasks. This immediately tells you where to train him. Although this student could complete the first steps of the sequence, he could not complete the busing tasks correctly. Despite repeating the first self-instructional statement under the "clean table" category, further statements did not cue the correct performance for that step.

For a more precise evaluation, use a form similar to that in Figure 6. Here you can keep track of the order (1-2-3) in which the student says a self-instructional statement and performs a task.

Note that the trainer numbered every self-instructional statement and task response to assess the sequence in which it occurred. As you can see, the student failed to clean the table and dust the seats. This information is useful when task sequence is important.

CHAPTER THREE

Modified Self-Instructional Training Package

Students who have difficulty learning self-instructions may benefit from combining self-instructions with another self-management strategy.

Some students will have difficulty learning the basic self-instructional package. They need a modified sequence that includes one or more of the following: (1) booster training, (2) verbal labeling, and (3) a combination of self-instructional training and one or more self-management strategies. Additionally, alternative and augmentative communication systems may be used with students who are nonverbal or who have limited expressive language.

Booster Training

Past research on self-instruction used one 2-hour training session or four 30-minute sessions. These may not be sufficient for students with severe learning needs. We have been successful with 2 participants trained in 30- to 40-minute sessions, one per day over 5 days; a third participant needed 5 additional days to meet criterion and a fourth required 7 additional days.

Booster training may take two forms. First, you may simply extend the number of days for the total training package until the student achieves criterion. Second, if the student performs the response (both the self-instructions and the desired work behavior) but does so inconsistently, you can modify the package. For example, you may need to remind the student at the beginning of the work sessions to repeat the self-instructions. Such prompts may be all the student needs to remind him- or herself to self-instruct.

Verbal Labeling

It was once believed that verbal deficits characteristic of many students with mental retardation would prohibit their use of self-instructions. This has not been supported by research. People with mental retardation (mild to severe) have been taught to self-instruct. Nevertheless, language-deficient students may have difficulty self-instructing. A method that has been found to be useful is to teach the student to repeat only part of the self-instruction (i.e., a verbal label). These verbal labels should include the same nouns or verbs as the self-instructions. For example, instead of learning the self-instruction "mop the floor under the kitchen table," the student can say "mop" and "table" as reminders. Likewise, to remember work materials to use, the noun *table* or the preposition *under* may suffice. A label(s) should direct the student's attention to the relevant dimensions of the task.

Agran, Fodor-Davis, & Moore (1986) taught a worker to use the did-next-now strategy to learn how to unload meal tray carts. At first, the worker did not respond to the training procedure. When they changed from teaching the self-instruction script to having her simply label each item to be removed from the meal tray, she learned the task quickly. For example, she said, "Forks" (did), "Take glass" (next), then "Glass" (now).

Combined Training Packages

Students who have difficulty learning self-instructions (either complete statements or shorter labels) may benefit from combining self-instructions with another self-management strategy, including (1) goal setting, (2) self-reinforcement, (3) picture cues, and (4) self-monitoring.

Goal Setting

Using goal setting, students decide the level at which they will perform a desired response. After reaching that criterion, the student sets another goal to repeat the process. Goal setting is particularly effective for vocational tasks that require students to increase their work rate.

For example, in one study we taught two participants to establish production goals for themselves. First, the workers learned to set kitchen timers for a specified work period. Then we instructed them to work as fast as possible, so they could complete the task before the bell rang. We reminded them to keep telling themselves to work faster. We provided praise and corrective feedback as needed. Although these participants were unresponsive when they used only self-instructions, they increased their production rates using goal setting and self-instructions. Apparently goal setting made the participants aware of the expectations and gave them something to shoot for. And the self-instructions directed their attention to this self-determined goal.

Self-Reinforcement

Here students give themselves reinforcers for correctly performing a task. First, students identify when they have performed the required task. Then they deliver to themselves a reinforcer — usually tokens, although some students have learned to give themselves verbal praise. You can introduce this strategy by placing coins or tokens in containers and instructing students to take a

coin after they self-instruct and complete a task.

You should train both self-instructions and self-reinforcement at the same time. As an example, let's say you are training a student to increase her work rate on an assembly task. First, give a rationale for the self-instruction training and explain the reinforcement procedures. Next, instruct the student to watch and listen to what you say and do. You might say to a student being trained to restock hospital supplies, "I need to stock adhesive boxes neater. Now you say just what I said." Then the student imitates your responses. Give corrective feedback as needed. Next model the reinforcement procedure, saying, "Good! I stacked neater. I get a coin." Last, instruct the student to imitate your demonstration.

Picture Cues

Picture cues are photographs or line drawings the student can follow to complete a task. (They may be in a booklet for easy access.) To begin work, the student opens the book to the first picture, self-instructs for that step in the task, then completes the step. Next, the student turns to the second picture, repeats the self-instructions, and performs that step. He or she continues to the end of the picture sequence. Like self-instructions, picture cues regulate distracting cues by focusing the student's attention on task completion. Unlike self-instructions, picture cues are permanent (and continuously present). The accompanying self-instructions strengthen task responses by directing the student to the next picture. As students learn the task, they depend less on picture cues; you can gradually withdraw picture cues from training, continuing with self-instructions.

> One student having difficulty with the self-instructions was trained to select a picture from a group of photographs that corresponded to the instruction, then to repeat the self-instructions. The picture guided her performance and helped her remember the self-instructions.
>
> **— Agran, Fodor-Davis, Moore, & Deer (1989)**

Like self-instructions, picture cues regulate distracting cues by focusing the student's attention on task completion.

Self-Monitoring

With self-monitoring, students record their own task completions, usually in a small notebook (with pencil) that they carry with them. After completing each task, students place a check mark on the appropriate page in the notebook. Interestingly, accuracy does not seem to affect the usefulness of this strategy, since the act of monitoring focuses attention on the task and is sufficient to improve performance.

Earlier we recommended that you verify that your students are indeed self-instructing. Self-monitoring may be a cost-efficient procedure to accomplish this. Students can learn to record whether they (1) self-instructed and (2) completed a task. Self-monitoring may encourage students to self-instruct. Self-monitoring becomes a cue for self-instructing which, in turn, is a cue for increased work.

Alternative Communication Training

Students who are nonverbal or with limited expressive knowledge may also receive self-instructional training. The fact that they cannot use verbal speech should not preclude them from learning how to self-instruct. The function of self-instructions is to remind students what they need to do. As long as the self-instruction is emitted, it ultimately doesn't matter whether it is vocalized, signed, or gestured.

Signing

Students can be taught to sign self-instructions. Such training would be similar to using speech as the communication mode; that is, the desired self-instructions would be shaped systematically. Yet several issues need to be addressed when teaching signed self-instructions.

First, because of the specific requirements of different sign languages and signing systems (combined signing and speaking), teachers need to teach self-instructions appropriate to the signing language used in terms of tense, syntax, and grammar. The self-instructions need to conform to these rules.

Second, the student's degree of physical dexterity (i.e., the use of fingers, hands, arms, head movements) will ultimately determine which signs will be taught.

Third, the signs taught should not interfere with the student's performance of the job task. The number of signs in a self-instructional sequence may need to be shortened to reduce the lag time between signing and performing the job skill.

Last, it is best to teach signs that require less movement (e.g., raising hand rather than moving four fingers).

Augmentative Communication Systems

Students who use augmentative communication systems (e.g., communication boards, picture books, synthesized speech units) can also be taught to self-instruct. Rather than repeating self-instructions out loud, the student is taught to point or attend to a picture illustrating the self-instruction, then to perform the desired response. Such training is similar to conventional self-instructional training.

Among the instructional issues to be considered: length and frequency of instructional sessions, types of self-instruction, number of words in self-instructions, and amount of instructional assistance needed. Such instruction should be integrated into ongoing work experiences, using words that are reinforcing to the students and that can be clearly depicted by the alternative form (i.e., picture or symbol). The type of communication system selected should be based on the student's motor skills and sensory needs and the suitability for the work site. (A smaller, portable device is recommended.)

As with vocal self-instructions, an improvement in the student's work performance after he or she has learned to self-instruct using an alternative communication system provides strong evidence to support the effectiveness of such training.

CHAPTER FOUR

Teaching Self-Instructional Techniques in Groups

Each student benefits from instructions given to everyone in the group.

In many programs one-to-one instruction, necessary for students with mild to severe disabilities, has become an expected and accepted practice. Unfortunately, this level of attention is becoming increasingly difficult to deliver. As class size and teacher responsibility increase, teachers have less time to meet the needs of all students at a one-to-one ratio. Such individualized teaching can also be inefficient. For example, in a classroom with 8 students, the teacher can provide one-to-one instruction only by leaving 7 students unattended; with an aide present in the classroom, 6 students will be unengaged. In all, one-to-one training suggests that students who are *not* receiving the individual attention are engaged in less intensive instructional activities or in nonlearning activities.

A solution to this logistical dilemma is to develop group instructional strategies — structured instruction involving 2 or more students at the same time. Fortunately, self-instruction can be taught in a group format. This gives *all* students in the class a chance to learn at the same time.

Advantages of Group Training of Self-Instruction

In teaching self-instruction, the advantages of group training formats can be assessed directly by their efficiency and indirectly through their incidental effects.

Efficiency

In one project we found that group training reduced instructional time. Students taught in a group required less time to reach criterion on a task than did a student taught by a one-to-one approach. The students learned a window-cleaning job. Four received instruction in a group, while 1 received instruction individually. All of the students had moderate to severe learning needs, and the student taught individually was randomly assigned.

These results indicated that the combined instructional time for the 4 students was a full minute less than the time needed for the individual. The mean instructional time for each student receiving group instruction to achieve criterion was just under 5.9 minutes. Since the time needed for the student receiving one-to-one training was 24.5 minutes to criterion, the group instruction resulted in a mean savings of teacher time of 18.6 minutes. When each session is broken down among the 4 students receiving the group training, only 1.4, 1.6, 1.5, and 1.4 minutes per session were required per student.

Incidental Learning

Incidental learning refers to students acquiring skills by observing naturally occurring events. In group learning, they can learn as other students are receiving instruction. They observe and watch other students in the group perform; they listen to the feedback others receive from their teacher or the training staff. These observations allow them to see desired behavior performed and subsequently praised or corrected. Each student benefits from instructions given to everyone in the group.

Group training employs the prompt hierarchy (i.e., increasing or decreasing levels of assistance) to ensure correct responding. You deliver all instruction to the group as a whole. After providing verbal instructions or modeling of the desired response, you ask the group to imitate your demonstration. Target 1 student at a time, asking him or her to say and do what you did. Ask the others to watch and pay attention as the others go through the sequence. Students having particular difficulty responding may have more than one turn. Reinforce or correct each student individually. Appendix D shows a training script for teaching 4 students to unload a truck. One teacher delivers all of the instructions.

When all the students perform the responses correctly, they see one another modeling the desired behaviors. All students can benefit from the instructional session.

Summary

Group-delivered self-instructional training represents an effective instructional format to teach improved work performance. The strategy has been useful for providing transitional programming, for teaching tasks efficiently, and for making better use of instructional time.

CHAPTER FIVE

Peer-Delivered Self-Instructional Training

After mastering the task, the tutors learn how to instruct others.

While self-instructional training is more efficient in a group format, some students may still require the intensive feedback that one-to-one instruction delivers. Peer tutors can provide such training.

Peer tutors are students who have received training in how to assist peers who have disabilities. They have effectively facilitated skill development across academic, community, and vocational domains. Usually tutors are students without disabilities who attend regular classrooms. Yet several studies have demonstrated that students with mental retardation can learn to be peer tutors

In one of our studies, we trained 2 students classified with mild mental retardation to serve as peer tutors for 3 students with severe mental retardation. The tutors taught these students to make sack lunches-to-order at a sandwich bar. The task analysis also included greeting the customer and asking for the order.

Training Peer Tutors

Training of peer tutors usually includes two phases: (1) the peer tutors must be able to perform the task they will teach, and (2) the peer tutors then need to learn *how* to teach the task.

They must model the responses and provide verbal praise and corrective feedback appropriately.

First, the tutors learn to perform the task to the same criterion established for their students. This ensures their competence for the challenge of teaching the task. Make sure to use the same instructional procedures you expect the peer tutor to use when instructing the student (i.e., modeling, delivering praise statements and corrective feedback).

After mastering the task, the tutors learn how to instruct others. This training can include role playing in which the tutor plays the role of the trainer; the teacher plays the role of the trainee. Here the peer tutor can practice demonstrating the appropriate "teacher" responses. For example, the tutor says, "This is how you perform the task. Watch what I say and do," and then performs the task. The teacher gives the tutor verbal praise or corrective feedback as needed.

Next, the tutor learns to give verbal praise. We found that tutors had more difficulty providing verbal praise than they had with any other aspect of training. In fact, they only delivered verbal praise 50% appropriately during sack lunch training.

Conduct verbal praise training in conjunction with role-play tasks: The teacher plays the role of the student, and the tutor provides verbal praise for appropriate responses (both task and self-instructional). As needed, prompt the peer tutor to provide the verbal praise. Continue the procedure until the peer tutor delivers praise consistently. The peer tutor must be able to reinforce both task and self-instruction responses.

After learning to deliver praise, they can learn how to give corrective feedback. Corrective feedback is necessary when the student fails to self-instruct or perform the task correctly. For example, the correction procedure might be, "No. That was not correct. Watch me do it, then you do it the same way." For nonresponse errors, the tutor should say, "No, you did not say what you needed to do. Watch what I say and do." Then the tutor models the correct response. Correct the tutor by stopping the role play and providing corrective feedback.

During the final role-playing sessions, the teacher makes correct and incorrect responses so the tutor can provide verbal praise or corrective feedback as appropriate. Continue this procedure to criterion.

Peers Training Students

Peer tutors deliver instructions in the same way you would as teacher, following the task analysis or instructional sequence of the program. Initially, you will need to supervise the instructional interaction between the peer tutor and student. This is to ensure the peer tutor is instructing and giving feedback appropriately. Provide feedback to the tutor and/or the student as needed. When the tutor achieves criterion, withdraw gradually. Occasionally observe the instructional interactions between the tutor and student to make sure the tutor is performing at criterion. Provide feedback as necessary.

If the tutor has difficulty with any aspect of the instruction (e.g., modeling correct response, delivering praise statements), provide the tutor with additional instruction independent of the sessions with the student. Again, use role playing so the tutor can practice the desired responses.

CHAPTER SIX

Final Recommendations

By teaching students to cue themselves by self-instructing, production rates will increase as teacher dependency decreases.

Teaching self-instruction to students with mental retardation has been effective as they acquired and maintained a variety of work behaviors. Self-instruction provides them with a strategy they can use to work independently, a characteristic especially valuable in work environments where teacher-delivered cues or consequences are absent or scant. To enhance their future employability, students must learn to solve problems independently. Self-instructional training is a powerful strategy for training students with mental retardation to control their own work behavior and to allow them to be less dependent on others. Such training promotes independence and self-direction.

> Self-instruction may facilitate generalization where external controls are not feasible (e.g., competitive employment). Self-instruction permits people with mental retardation to provide for themselves cues or reinforcers that may not be consistently delivered by others.
>
> — Agran & Martin (1987)

Self-instructional training can also be used to increase production rates. Students can be taught to direct themselves to work faster or to produce more units or products. Such self-instructions would, in effect, serve as "pacing prompts" and would keep the students' attention on the task.

After observing examples and nonexamples of working slowly and working quickly, 4 employees with mental retardation were taught to say, "I need to work faster," each time they were given a sorting task. The work rates of all 4 participants increased.

— Moore, Agran, Fodor-Davis (1989)

To prevent off-task behaviors and unnecessary pausing, teachers routinely cue students to "keep working." By teaching students to cue themselves by self-instructing, production rates will increase as teacher dependency decreases.

We have described several modifications of the training package that will accommodate many students who have initial difficulties learning self-instructions. For example, you can combine instructional packages with self-management strategies, deliver self-instruction training in a group instructional format, or teach peers to deliver training to students. Additionally, students with limited expressive language can use alternative and augmentative communication systems to express self-instructions. Even with modifications, however, some students may continue to have problems with self-instructions. In these situations, you may need to teach the skills directly without self-instructions to establish the desired responses. Then you can add self-instructions to maintain the response. This simply involves telling the students to remind themselves verbally what to do prior to doing it. Such self-generated verbal reminders may enhance response maintenance over time.

To be successful on the job, students must be able to perform in the absence of their trainers. A trainer withdrawal that is too rapid may result in a loss of behavioral gains. On the other hand, withdrawal that occurs too slowly may make students dependent on teachers or supervisors. Learning self-instruction facilitates this transfer of control, giving students a means of replacing teacher cues with their own. Now they have a means of working independently.

In summary, training students to use self-instruction helps students with mental retardation to acquire, maintain, and generalize work behaviors. It provides them with strategies to self-manage and direct their own behavior, independent of manipulation by others. As they learn strategies, they can use them to enhance their independent functioning across a wide range of work experiences.

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APPENDIX A Did-Next-Now Training Script

Cleaning Patient Room

Rationale

Trainer: We have been watching you clean patient rooms. We like the way you work. You always try to do the best you can. Sometimes you forget to clean all the important places in a patient room in the right order. We are here to help you be a better housekeeper. We are going to help you remember to clean all the important places in a patient room in the right order. It's important to do all the parts of your job here at the hospital, so that when you graduate you can get a good job as a housekeeper.

Verbal Instruction

Trainer: When you clean patient rooms, say three things before you start. Tell yourself:
(1) what you just finished doing;
(2) what you need to do next;
(3) what you are going to do now.
If you say these three things before you start, you will remember to clean all the important places in a patient room in the right order.

Model

Trainer: I am going to show you how I remember to begin cleaning a patient room by saying three things out loud. Watch and listen carefully to what I say and do.
(1) I carried my bucket to the room.
(2) I need to fill my bucket.
(3) I'm going to fill my bucket now.

(Trainer takes materials out of the bucket and fills bucket with water.)

Model-Imitation (Verbal-Motor Rehearsal)

Trainer: Let's practice cleaning a patient room together. We will remember to clean all the important places in the right order by telling ourselves:
(1) what we just finished doing;
(2) what we need to do next;
(3) what we are going to do now.
We will start from the beginning. Watch and listen carefully to what I say and do; then it will be your turn.

(A) (1) I carried my bucket to the room.
(2) I need to fill my bucket.
(3) I'm going to fill my bucket now.

(Trainer takes materials out of the bucket and fills bucket.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

To correct verbal responses

(Follow these outlined correction procedures:)

Trainer: (1st correction; added cue) I carried my buc___. I need to fill my _____. I'm going to _____.

Student: Bucket, my bucket, fill my bucket now.

Trainer: (2nd correction; model-test) I carried my bucket to the room. I need to fill my bucket. I'm going to fill my bucket now. Now it's your turn.

Student: I carried my bucket to the room. I need to fill my bucket. I'm going to fill my bucket now.

Trainer: (3rd correction; model-lead-test) I carried my bucket to the room. I need to fill my bucket. I'm going to fill my bucket now. Say it with me.

Trainer and Student: I carried the bucket to the room. I need to fill the bucket. I'm going to fill the bucket now.

Trainer: Now it's your turn; say the whole thing by yourself.

Student: I carried my bucket to the room. I need to fill my bucket. I'm going to fill my bucket now.

(When verbal responses are consistently correct, instruct the student to perform the task, then go on to the next instruction.)

To reinforce

(Follow these outlined reinforcement procedures:)

1. After every correct verbal response, reinforce the response with a praise statement (e.g., "Nice job," "Great," "Good work," "Excellent," "All right," "You got it").
2. Vary your verbal praise.
3. A pat on the back may occasionally be given.

Trainer: Again, watch and listen to what I say and do.

(B) (1) I filled my bucket.
(2) I need to empty the trash.
(3) I'm going to empty the trash now.

(Trainer visually inspects all trash receptacles in the room and bathroom, takes liners out of trash receptacles if they contain trash, carries them to the housekeeping cart, and puts new trash liners in those receptacles emptied.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

To correct verbal responses

(Follow these outlined correction procedures, see script above.)

1st correction (added cue)

2nd correction (model-test)

3rd correction (model-lead-test)

(When verbal responses are consistently correct, instruct the student to perform the task, then go on to the next instruction.)

To correct motor responses

(Follow the outlined correction procedures.)

1st correction (added cue)

2nd correction (model-test)

3rd correction (model-lead-test)

(When task responses are consistently correct, go on to the next instruction.)

To reinforce

(Follow the outlined reinforcement procedures.)

1. After every correct verbal response, reinforce

with a praise statement (e.g., "Nice job," "Good work," "Excellent," "All right," "You got it").

2. Vary your verbal praise.
3. A pat on the back may occasionally be given.

Trainer: Watch and listen to what I say and do again.

(C) (1) I emptied the trash.
(2) I need to clean the patient bed table.
(3) I'm going to clean the patient bed table now.

(Trainer carries the bucket to the patient bed table, dips rag and wrings, and wipes the top, underneath the top, stand, base, and wheels of bed table.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

Trainer: Watch and listen to what I say and do again.

(D) (1) I wiped the patient bed table.
(2) I need to wipe the hall door.
(3) I'm going to wipe the hall door now.

(Trainer picks up the bucket and carries to hall door, dips rag and wrings, then dusts door edges, hall side, room side, and semicircle around door edges.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

Trainer: Watch and listen to what I say and do again.

(E) (1) I wiped the hall door.
(2) I need to wipe the light switch.
(3) I'm going to wipe the light switch now.

(Trainer dips rag and wrings, then wipes light switch.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(F) (1) I wiped the light switch.
(2) I need to wipe the thermostat.
(3) I'm going to wipe the thermostat now.

(Trainer wipes the thermostat.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(G) (1) I wiped the thermostat.
(2) I need to wipe the heat vents.
(3) I'm going to wipe the heat vents now.

(Trainer wipes both heat vents.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces following specified procedures.)

Trainer: Watch and listen to what I say and do again.

(H) (1) I wiped the heat vents.
(2) I need to dust the light above the mirror.
(3) I'm going to dust the light above the mirror.

(Trainer takes dry rag from cleaning materials cart, then dusts light above mirror.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(I) (1) I dusted the light above the mirror.
(2) I need to wipe the mirror.
(3) I'm going to wipe the mirror now.

(Trainer wipes the mirror with the dry rag.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(J) (1) I dusted the mirror.
(2) I need to dust the shelf above the sink.
(3) I'm going to dust the shelf above the sink now.

(Trainer dusts the shelf above the sink with the dry rag.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(K) (1) I dusted the shelf above the sink.
(2) I need to wipe the sink.
(3) I'm going to wipe the sink now.

(Trainer dips rag and wrings and wipes soap dispenser, sink fixtures, basin, underneath basin, and pipes.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(L) (1) I wiped the sink.
(2) I need to wipe the nightstand.
(3) I'm going to wipe the nightstand now.

(Trainer carries bucket to nightstand, dips rag and wrings, wipes top, front, and sides, then wipes telephone base dial, body, receiver, receiver cord, and wall cord.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(M) (1) I wiped the nightstand.
(2) I need to dust the chairs.
(3) I'm going to dust the chairs now.

(Trainer takes dry rag, then dusts all chairs in room — backs, seats, sides.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(N) (1) I dusted the chairs.
(2) I need to dust the couch.
(3) I'm going to dust the couch now.

(Trainer takes dry rag, then dusts top, front, and sides.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

Trainer: Watch and listen to what I say and do again.

(O) (1) I dusted the couch.
(2) I'm finished cleaning the patient room.
(3) I'm going to clean the bathroom next; then I'm going to vacuum the patient room.

(Trainer picks up the bucket and goes into the bathroom.)

Now it's your turn. Do everything I said and did.

(Student imitates the above verbal statements and performs the task.)

(Trainer corrects or reinforces after specified procedures.)

(Trainer repeats the entire sequence, then requests the student to perform the entire sequence. Correct or reinforce after specified procedures.)

Review

Trainer: We have finished dusting a patient room. We remembered to clean all of the important places in the right order by saying three things out loud just before we began a new task. After you finish cleaning a patient room, it's important to remember to clean the bathroom next, then to vacuum.

We have finished our lesson for the day. Before our lesson tomorrow, I want you to practice cleaning patient rooms just like we did today. Just before you start a new task, remember to tell yourself three things:

(1) what you just finished doing;
(2) what you need to do next;
(3) what you are going to do now.

APPENDIX B

Did-Next Training Script

Cleaning Tables

Rationale

Trainer: I have been watching you clean tables and windows in the cafeteria. You always try to do the best you can. Sometimes you forget to do the tables exactly the way they should be done. I'm going to help you do a better job on the tables. Remember, you need to do a good job here so that you'll be ready to work when you get a job after graduation.

Verbal Instruction

Trainer: When you are told to do a job, you need to remember to say two things just before you start a new task. You need to tell yourself:

(1) what you just finished doing;
(2) what you are going to do next.

If you remember to say these two things every time you start a new task, you will always remember to do the job right.

Model

Trainer: I am going to show you how I remember to do the job right by saying two things out loud. Watch and listen carefully to what I say and do.
(1) I got the bucket.
(2) I have to clean the table.

(Trainer proceeds to clean the table.)

Model-Imitation (Verbal-Motor Rehearsal)

Trainer: Let's practice doing this together. Remember to say:
(1) what we just finished doing;
(2) what we need to do next.

We will start from the beginning. Watch and listen to what I do and say; then it will be your turn.

(1) I got the bucket.
(2) I have to clean the table.

(Trainer cleans the table.)

(Student imitates above responses.)

To correct verbal responses

Trainer: (Prompt) I got the _____.

Student: — bucket. I got the bucket.

Trainer: I have to _____.

Student: — clean the table. I have to clean the table.

(If student responds incorrectly, model entire verbalization and have student repeat. When verbal responses are consistently correct, instruct student to perform the task.)

To correct motor responses

Trainer: (1) (Added cue) Remember, you have to get the bucket.
(2) (Model) Watch me get the bucket.

(Trainer performs response.)

(3) (Physical guidance) Let me help you.

(Trainer guides student through the task.)

(When responses are consistently correct, go to the next task sequence.)

(Trainer, provide verbal praise for correct responses for both the verbal response and the task response.)

(The same procedures are used for each task in the sequence.)

Review

Trainer: You have just finished cleaning the table. You remembered to say the two things that help you do the table correctly. After you were told to clean the table, you said, "I have to clean the table. I need to get my bucket." Then you said . . . (go through entire task sequence). We have finished our lesson for today.

Remember, every time you are told to do something, you can do it correctly if you say what you just did and what you are going to do next.

APPENDIX C

Interactive Training Script

Making a Sandwich

Rationale

Trainer: You are here learning to be a kitchen worker. Making sack lunches is one of the important jobs you will be learning. Sometimes when you make sack lunches, you may forget to do things in the right order. It's important to do all of your jobs here correctly so that when you leave you can get a good job as a kitchen worker.

Verbal Instruction

Trainer: When you are making sack lunches and a customer comes up to order, the first thing you need to say is, "Hello, can I take your order?" After the customer tells you what he or she wants, you can remember to make the lunch in the right way by telling yourself:
(1)what you just did;
(2)what you need to do next.

. n, you ask the customer:
(3)What kind do they want?
(4)Do they want anything else?

Model

Trainer: Let's practice making a sandwich. Remember to say what I say. I am going to show you how I remember to make a sack lunch in the right way. _____ is going to be the customer. Watch and listen carefully to what I say and do. Then it will be your turn.

Model-Imitation

(Customer comes up to the counter. Trainer makes eye contact while addressing customer.)

Trainer: (A) Can I help you?

Customer: *I would like to order a sandwich to go.*

Trainer: (B) Bread first. (Self-directed)
What kind of bread? (Interactive)

Customer: *Rye bread.*

Trainer: Rye. (Self-directed)

(Trainer opens bread container, selects two slices of the rye bread, and lays them on the counter side by side.)

Trainer: I just showed you how to remember the first step when making a sack lunch. Now it's your turn. Do and say everything I did. _____ will be the customer.

(Customer comes up to counter.)

Student: Hello. Can I help you?

(Customer gives order.)

Student: Bread first. (Self-directed)
What kind of bread? (Interactive)

Customer: *Rye.*

Student: Rye. (Self-directed)

(Student opens bread container, selects two slices of the rye bread, and lays them on the counter side by side.)

To correct verbal and task responses

(If the student makes an error, tell the student to stop. Model the response and have the student perform the step again.)

(If the student does not respond, prompt the student. If an error occurs, model the response. If the task is performed correctly, provide verbal praise as directed in appendix A. If the student continues not to respond, repeat the previous model sequence.)

To reinforce verbal and task responses

(Praise every correct set of verbal responses.)

Example: You said that just right!

(Praise every correct task response.)

Example: Great, you selected the right kind of bread.

Trainer: Watch and listen again. Then it will be your turn.

(C) Did bread. (Self-directed)

Spread next. (Self-directed)

What spread? (Interactive)

Customer: *Mustard.*

Trainer: Mustard. (Self-directed)

(Trainer fills the measuring spoon with mustard to the brim, empties the spoon out on one slice of bread, and spreads it out to cover the entire surface.)

Trainer: Another spread? (Interactive)

Customer: *Mayonnaise.*

Trainer: Mayonnaise. (Self-directed)

(Trainer fills the measuring spoon to the brim with mayonnaise, empties the spoon out on the other slice of bread, and spreads it out to cover the entire surface.)

Trainer: Another spread? (Interactive)

Customer: *No, thank you.*

Trainer: No. (Self-directed)

Now it's your turn. Do and say everything I did.

Student: Did bread. (Self-directed)

Spread next. (Self-directed)

What kind of spread? (Interactive)

Customer: *Mustard.*

Student: Mustard. (Self-directed)

(Student fills the measuring spoon to the brim with mustard, empties the spoon on one slice of bread, and spreads it out to cover the entire surface.)

Student: Another spread? (Interactive)

Customer: *Mayonnaise.*

Student: Mayonnaise. (Self-directed)

(Student fills the measuring spoon to the brim with mayonnaise, empties the spoon on the other slice of bread, and spreads it out to cover the entire surface.)

Student: Another spread? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)

Trainer: Watch and listen again. Then it will be your turn.

(D) Did spread. (Self-directed)

Extras next. (Self-directed)

What extras? (Interactive)

Customer: *Lettuce.*

Trainer: Lettuce. (Self-directed)

(Trainer takes a handful of lettuce from container and places it on one slice of bread.)

Trainer: Another extra? (Interactive)

Customer: *Pickles.*

Trainer: Pickles. (Self-directed)

(Trainer selects two pickle pieces and places them on top of the lettuce.)

Trainer: Another extra? (Interactive)

Customer: *No, thank you.*

Trainer: No. (Self-directed)

Now it's your turn. Do and say everything I did.

Student: Did spread. (Self-directed)

Extras next. (Self-directed)

What kind of extras? (Interactive)

Customer: *Lettuce.*

Student: Lettuce. (Self-directed)

(Student takes a handful of lettuce from container and places it on one slice of bread.)

Student: Another extra? (Interactive)

Customer: *Pickles.*

Student: Pickles. (Self-directed)

(Student selects two pickle pieces and places them on top of the lettuce.)

Student: Another extra? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)

Trainer: Watch and listen again. Then it will be your turn.

(E) Did extras. (Self-directed)

Meat next. (Self-directed)

What kind of meat? (Interactive)

Customer: *Turkey.*

Trainer: Turkey. (Self-directed)

(Trainer places one portion of turkey on slice of bread without the extras.)

Trainer: Another meat? (Interactive)

Customer: *No, thank you.*

Trainer: No. (Self-directed)

Now it's your turn. Do and say everything I did.

Student: Did extras. (Self-directed)

Meat next. (Self-directed)

What kind of meat? (Interactive)

Customer: *Turkey.*

Student: Turkey. (Self-directed)

(Student places one portion of turkey on slice of bread without the extras.)

Student: Another meat? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)

Trainer: Watch and listen again. Then it will be your turn.

(F) Did meat. (Self-directed)

Cheese next. (Self-directed)

What kind of cheese? (Interactive)

Customer: *Swiss.*

Trainer: Swiss. (Self-directed)

(Trainer places one piece of Swiss cheese on top of turkey.)

Trainer: Another cheese? (Interactive)

Customer: *No, thank you.*

Trainer: No. (Self-directed)

Now it's your turn. Do and say everything I did.

Student: Did meat. (Self-directed)
Cheese next. (Self-directed)
What kind of cheese? (Interactive)

Customer: *Swiss.*

Student: Swiss. (Self-directed)

(Trainer places one piece of Swiss cheese on top of turkey.)

Student: Another cheese? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)

Trainer: Watch and listen again. Then it will be your turn.
(G) Did cheese. (Self-directed)
Wrap sandwich next. (Self-directed)

(Trainer places sandwich in plastic bag.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Did cheese. (Self-directed)
Wrap sandwich next. (Self-directed)

(Student places sandwich in plastic bag.)

Trainer: Watch and listen again. Then it will be your turn.
(H) Did wrap. (Self-directed)
Drink next. (Self-directed)
What kind of drink? (Interactive)

Customer: *Tab.*

Trainer: Tab in sack. (Self-directed)

(Trainer places Tab can in open sack.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Did wrap. (Self-directed)
Drink next. (Self-directed)
What kind of drink? (Interactive)

Customer: *Tab.*

Student: Tab in sack. (Self-directed)

(Student places Tab can in open sack.)

Trainer: Watch and listen again. Then it will be your turn.
(I) Did drink. (Self-directed)
Sandwich next. (Self-directed)
Sandwich in sack. (Self-directed)

(Trainer places sandwich in open sack.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Did drink. (Self-directed)
Sandwich next. (Self-directed)
Sandwich in sack. (Self-directed)

(Student places sandwich in open sack.)

Trainer: Watch and listen again. Then it will be your turn.
(J) Did sandwich. (Self-directed)
Chips next. (Self-directed)
What kind of chips? (Interactive)

Customer: *Doritos.*

Trainer: Doritos in sack. (Self-directed)

(Trainer places Doritos in open sack.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Did sandwich. (Self-directed)
Chips next. (Self-directed)
What kind of chips? (Interactive)

Customer: *Doritos.*

Student: Doritos in sack. (Self-directed)

(Student places Doritos in open sack.)

Trainer: Watch and listen. Then it will be your turn.
(K) Did chips. (Self-directed)

Cookie next. (Self-directed)

What kind of cookie? (Interactive)

Customer: *None, thank you.*

Trainer: No cookie. (Self-directed)

Now it's your turn. Do and say everything I did.

Student: Did chips. (Self-directed)

Cookie next. (Self-directed)

What kind of cookie? (Interactive)

Customer: *None, thank you.*

Student: No cookie. (Self-directed)

Trainer: Watch and listen again. Then it will be your turn.

(L) Did cookie. (Self-directed)

Napkin next. (Self-directed)

Napkin in sack. (Self-directed)

(Trainer folds napkin in half and places in open sack.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Did cookie. (Self-directed)

Napkin next. (Self-directed)

Napkin in sack. (Self-directed)

(Student folds napkin in half and places in open sack.)

Trainer: Watch and listen again. Then it will be your turn.

(M) Will there be anything else? (Interactive)

Customer: *No, thank you.*

Trainer: Now it's your turn. Do and say everything I did.

Student: Will there be anything else? (Interactive)

Customer: *No, thank you.*

Trainer: Watch and listen again. Then it will be your turn.

(N) Fold sack next. (Self-directed)

Thank you. Come again. (Interactive)

(Trainer folds sack twice, makes eye contact, and hands the customer the sack.)

Trainer: Now it's your turn. Do and say everything I did.

Student: Fold sack next. (Self-directed)

Thank you. Come again. (Interactive)

(Student folds sack twice, makes eye contact, and hands the customer the sack.)

Review

Trainer: You know how to make a sack lunch in the right order by telling yourself what you just did and what comes next. You know how to get the order right by asking customers to name what they want. Now I want you to practice making a sack lunch by yourself. Remember to remind yourself ***what you just did*** and ***what comes next,*** then ask the customer ***what she wants.*** _____ will be the customer again. Get ready.

Student: (A) Hello. Can I help you?

(Customer gives order.)

Student: Bread first. (Self-directed)

(B) What kind of bread? (Interactive)

Customer: *Rye.*

Student: Rye. (Self-directed)

(Student opens bread container, selects two slices of the rye bread, and lays them on the counter side by side.)

Student: Did bread. (Self-directed)

(C) Spread next. (Self-directed)

What kind of spread? (Interactive)

Customer: *Mustard.*

Student: Mustard. (Self-directed)

(Student fills the measuring spoon with mustard to the brim, empties the spoon on one slice of bread, and spreads it out to cover the entire surface.)

Student: Another spread? (Interactive)

Customer: *Mayonnaise.*

Student: Mayonnaise. (Self-directed)

(Student fills the measuring spoon with mayonnaise to the brim, empties the spoon on the other slice of bread, and spreads it out to cover the entire surface.)

Student: Another spread? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)
(D) Did spread. (Self-directed)
Extras next. (Self-directed)
What kind of extras? (Interactive)

Customer: *Lettuce.*

Student: Lettuce. (Self-directed)

(Student takes a handful of lettuce from container and places it on one slice of bread.)

Student: Another extra? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)
(E) Did extra. (Self-directed)
Meat next. (Self-directed)
What kind of meat? (Interactive)

Customer: *Turkey.*

Student: Turkey. (Self-directed)

(Student places one portion of turkey on slice of bread without extras.)

Student: Another meat? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)
(F) Did meat. (Self-directed)
Cheese next. (Self-directed)
What kind of cheese? (Interactive)

Customer: *Swiss.*

Student: Swiss. (Self-directed)

(Student places one piece of Swiss cheese on top of turkey.)

Student: Another cheese? (Interactive)

Customer: *No, thank you.*

Student: No. (Self-directed)
(G) Did cheese. (Self-directed)
Wrap sandwich next. (Self-directed)

(Student places sandwich in plastic bag.)

(H) Did wrap. (Self-directed)
Drink next. (Self-directed)
What kind of drink? (Interactive)

Customer: *Tab.*

Student: Tab in sack. (Self-directed)

(Student places Tab can in open sack.)

(I) Did drink. (Self-directed)
Sandwich next. (Self-directed)
Sandwich in sack. (Self-directed)

(Student places sandwich in open sack.)

(J) Did sandwich. (Self-directed)
Chips next. (Self-directed)
What kind of chips? (Interactive)

Customer: *Doritos.*

Student: Doritos in sack. (Self-directed)

(Student places Doritos in open sack.)

(K) Did chips. (Self-directed)

Cookie next. (Self-directed)

What kind of cookie? (Interactive)

Customer: *None, thank you.*

Student: No cookie. (Self-directed)

(L) Did cookie. (Self-directed)

Napkin next. (Self-directed)

Napkin in sack. (Self-directed)

(Student folds napkin in half and places in open sack.)

(M) Will there be anything else? (Interactive)

Customer: *No, thank you.*

Student: Fold sack next. (Self-directed)

(N) Thank you. Come again. (Interactive)

(Student folds sack twice, makes eye contact, and hands customer the sack.)

To correct verbal and task response

(If the student makes an error, tell the student to stop. Model the response and have the student imitate the step again.)

(If the student does not respond, prompt the student to proceed. If an error occurs, model the response. If the task is performed correctly, provide verbal praise as directed. If the student continues not to respond, repeat the previous model sequence.)

To reinforce verbal and task responses

(Praise every correct set of verbal responses.)

Example: You said that just right!

(Praise every correct task response.)

Example: Great, you selected the right kind of bread.

Trainer: You have done a great job making sack lunches in the right order. Remember, when you are making sack lunches and a customer comes up to order, the first thing you need to say is, "Hello. Can I take your order?" After the customer tells you what he or she wants, you can remember to make the lunch the right way by first reminding yourself what you should do next, then asking the customer what he wants again.

It's important to do all of your jobs here the best you can, so that when you leave, you can get a good job as a kitchen worker.

APPENDIX D

Group Self-Instructional Training Script

Unloading a Truck

Rationale

Trainer: I have been watching you unloading the truck (e.g., UPS vehicle). All of you try to do the best you can, but sometimes you load boxes incorrectly. I'm going to help you do a better job. First, I am going to show you how to best unload a truck. Then I will ask each of you to do it. Remember, you need to do a good job here so that you'll be ready to work when you get a job after graduation.

Verbal Instruction

Trainer: When you are told to do a job, you need to remember to say two things just before you start a new task. You need to tell yourself:
(1) what you just finished doing;
(2) what you are going to do next.

If you remember to say these two things every time you start a new task, you will always remember to do the job right.

Model

Trainer: I am going to show you how I remember to do the job right by saying two things out loud. Watch and listen carefully to what I say and do.

(1) I rolled the dolly onto the truck.
(2) I need to bend my knees and place the top box on the dolly.

(Trainer picks up the box on top, and places box on dolly.)

Model-Imitation (Verbal-Motor Rehearsal)

Trainer: Let's practice doing this one at a time. Watch me and [student's name] perform the task. Remember to say two things:
(1) what you just finished doing;
(2) what you need to do next.

Watch and listen to what I do and say, then it will be your turn to say just what I said.

(1) I rolled the dolly onto the truck.
(2) I need to bend my knees and place the top box on the dolly.

(Trainer and Student 1 each pick up a box on top, and place on dolly after repeating the verbalization.)

(If Student 1 responds correctly, the trainer says to the group: "[Student's name] said what he just finished doing, then said what he needed to do next. After this, he picked up the box and placed it on the dolly. When it is your turn, remember to do this.")

(If Student 1 responds incorrectly, the trainer asks members of the group what Student 1 didn't do. Then the trainer says, "Remember, you need to say what you just finished doing, then what you need to do next. After you say these two things, you pick up the box on top and place it on the dolly.")

To correct verbal responses

(Follow these outlined correction procedures:)

Trainer: (Prompt) I rolled _____.

Student: — the dolly onto the truck.

Trainer: I need to bend _____.

Student: — my knees and place box on dolly.

(If student responds incorrectly, model entire verbalization and have student repeat. When verbal responses are consistently correct, instruct students to perform the task.)

(Give verbal praise for correct verbal responses.)

(The same procedures are used for each task in the sequence.)

(After Student 1 performs the task, each of the remaining students performs the task.)

Review

Trainer: We have just finished unloading the top boxes. We remembered to say the two things that help us unload the boxes correctly. After you said you had rolled the dolly onto the truck, you said, "I need to bend my knees and place the top box on dolly." Then you said . . . (go through entire task sequence). We have finished our lesson for today.

Remember, every time you are told to do something, you can do it correctly if you say what you just did and what you are going to do next.

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